

WE CLAIM:

1. A method for repairing a metal overbraid of a metal overbraid wiring harness comprising the steps of:
  - trimming a damaged area of the metal overbraid circumferentially around the metal overbraid wiring harness to expose a repair area;
  - 5 moving the metal overbraid away from the repair area;
  - covering the repair area with an electrically conductive material;
  - moving the metal overbraid over the electrically conductive material;
  - overlaying the repair area with a wire screen mesh wherein the
  - 10 repair area is completely covered by the wire screen mesh; and
  - securing the wire screen mesh to the metal overbraid wiring harness.
2. The method of Claim 1, wherein the damaged area is in a part of the metal overbraid that is single braided.
3. The method of Claim 1 wherein the repair area is from about 0.5 inches to about 1.0 inches.
4. The method of Claim 1 wherein the damaged area is at least 0.5 inches from a double braid overlap.
5. The method of Claim 1 wherein the metal overbraid is moved from about 0.5 inches to about 1.0 inches from both ends of the repair area.
6. The method of Claim 1 wherein the metal overbraid is moved by spreading the metal overbraid and folding it back away from the repair area.

7. The method of Claim 6 wherein spreading the metal overbraid produces individual metal strands.

8. The method of Claim 1 wherein the electrically conductive material has a substantially similar conductivity to the metal overbraid.

9. The method of Claim 1 wherein the electrically conductive material is metal foil tape or tin foil.

10. The method of Claim 1 wherein the electrically conductive material covers the entire repair area.

11. The method of Claim 1 wherein overlaying the wire screen mesh comprises wrapping the mesh around the harness, wherein there is 50% overlap of the mesh.

12. The method of Claim 11 wherein the wire screen mesh is about 1 inch in width.

13. The method of claim 1 wherein the wire screen mesh is secured on the metal overbraid by securing each end of the mesh with shrink tape.

14. The method of claim 13 wherein the shrink tape has a temperature rating of from about 250 °F to about 500 °F.

15. The method of claim 14 wherein the shrink tape is made of polytetrafluoroethylene.

16. The method of claim 1 wherein overlaying the wire screen mesh provides an area that has similar flexibility and conductivity as the metal overbraid.

17. The method of Claim 1 further comprising the step of wrapping tape around the harness from about 0.5 inches to about 1.0 inches from both ends of the repair area after trimming the damaged area.

18. The method of Claim 17 further comprising the step of removing the tape before overlaying with the wire screen mesh.

19. A method for repairing a metal overbraid of a metal overbraid wiring harness comprising the steps of:

- trimming a damaged area of the overbraid circumferentially around the metal overbraid wiring harness to expose a repair area, wherein the  
5 damaged area is at least 0.5 inches from a double braid overlap;
- wrapping tape around the metal overbraid on both sides of the repair area;
- spreading the metal overbraid from the repair area to the tape;
- moving the spread overbraid away from the repair area;
- 10 covering the repair area with a metal cover, wherein the metal cover covers the entire repair area;
- moving the spread overbraid over the metal cover;
- removing the tape from the metal overbraid;
- overlaying the repair area with a wire screen mesh, wherein the  
15 spread overbraid is completely covered; and
- securing the wire screen mesh to the metal overbraid wiring harness.

20. The method of Claim 19 wherein the repair area is from about 0.5 inches to about 2.0 inches.

21. The method of Claim 19 wherein the wire screen mesh is secured to the metal overbraid by wrapping heat shrink tape over both ends of the wire screen mesh and heating, thereby shrinking the heat shrink tape and securing the wire screen mesh in place.

22. The method of Claim 19 wherein the metal cover is metal foil tape or tin foil.

23. The method of Claim 19 wherein the metal overbraid is repaired without removing the metal overbraid wiring harness from an engine.

24. A method for repairing a metal overbraid of a metal overbraid wiring harness comprising the steps of:

- trimming a damaged area of the metal overbraid circumferentially around the metal overbraid wiring harness to expose a repair area, wherein the damaged area is at least 0.5 inches from a double braid overlap;
- 5 wrapping tape around the metal overbraid wiring harness from about 0.5 inches to about 1.0 inches from both sides of the repair area;
- spreading the metal overbraid into metal strands from the repair area to the tape;
- 10 folding back the metal strands away from the repair area and over the tape;
- covering the repair area with a metal tape wherein the metal tape covers the entire repair area;
- folding the metal strands back over the metal cover;
- 15 removing the tape from the metal overbraid wiring harness;

overlaying the repair area with a wire screen mesh;  
wrapping a shrink tape over both ends of the wire screen mesh;  
and  
heating the shrink tape to secure the wire screen mesh to the  
20 metal overbraid wiring harness.

25. The method of Claim 24 wherein the damaged area comprises a  
fraying of or a hole in the metal overbraid.

26. A metal overbraid wiring harness having a repaired damaged area  
in the metal overbraid, wherein said damaged area is at least 0.5 inches from a  
double braid overlap, said damaged area being repaired by:  
trimming the damaged area of the overbraid circumferentially  
5 around the metal overbraid wiring harness to expose a repair area;  
wrapping tape around the metal overbraid wiring harness on both  
sides of the repair area;  
spreading the metal overbraid into metal strands from the repair  
area to the tape;  
10 folding back the metal strands away from the repair area and over  
the tape;  
applying a metal cover over the repair area wherein the metal  
cover covers the entire repair area;  
folding the metal strands over the metal cover;  
15 removing the tape from the metal overbraid wiring harness;  
overlaying the repair are with a wire screen mesh wherein the  
metal strands are completely covered; and  
securing the wire screen mesh to the metal overbraid wiring  
harness.

27. The metal overbraid wiring harness of Claim 26 wherein no more than four damaged areas are repaired in the metal overbraid wiring harness.

28. The metal overbraid wiring harness of Claim 26 wherein, after repairing the damaged areas, the wiring harness has substantially the same conductivity as an undamaged metal overbraid wiring harness.

29. The metal overbraid wiring harness of Claim 26 wherein the repair area is from about 0.5 inches to about 2.0 inches.

30. The metal overbraid wiring harness of Claim 26 wherein the metal cover is metal foil tape.

31. An engine having a metal overbraid wiring harness, wherein said harness has a repaired damaged area in the metal overbraid, said damaged area being repaired by:

5                   trimming the damaged area of the metal overbraid  
circumferentially around the metal overbraid wiring harness to expose a repair  
area, wherein the damaged area is in a part of the metal overbraid that is single  
braided;

                  wrapping tape around the metal overbraid on both sides of the  
repair area;

10               moving the metal overbraid away from the repair area;  
                  covering the repair area with an electrically conductive material;  
                  moving the metal overbraid over the electrically conductive  
material;

                  removing the tape from the metal overbraid;  
15               overlaying the repair area with a wire screen mesh wherein the  
entire repair area is completely covered by the wire screen mesh; and

securing the wire screen mesh to the metal overbraid wiring harness.

32. The engine of Claim 31 wherein the engine is an aircraft engine.

33. A method for repairing a metal overbraid of a metal overbraid wiring harness without removing said metal overbraid wiring harness from an engine, comprising the steps of:

5       trimming a damaged area of the overbraid circumferentially  
around the metal overbraid wiring harness to expose a repair area, wherein the  
damaged area is in a single overbraid portion of the metal overbraid;  
      wrapping tape around the metal overbraid on both sides of the  
repair area;  
      spreading the metal overbraid from the repair area to the tape;  
10       moving the spread overbraid away from the repair area;  
      covering the repair area with a metal cover, wherein the metal  
cover covers the entire repair area;  
      moving the spread overbraid over the metal cover;  
      removing the tape from the metal overbraid;  
15       overlaying the repair area with a wire screen mesh, wherein the  
spread overbraid is completely covered; and  
      securing the wire screen mesh to the metal overbraid wiring  
harness.

34. The method of Claim 33 wherein the metal cover is a metal foil tape, said tape having a substantially similar conductivity to the metal overbraid.

35. The method of Claim 33 wherein the wire screen mesh is secured to the metal overbraid wiring harness by wrapping heat shrink tape over both

ends of the wire screen mesh and heating, thereby shrinking the heat shrink tape and securing the wire screen mesh in place.

36. The method of Claim 33 wherein the engine is an aircraft engine.